1. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$54x^2 + 75x + 25$$

A. $a \in [17.97, 18.27]$, $b \in [1, 10]$, $c \in [2.94, 3.17]$, and $d \in [3, 9]$

B. $a \in [2.63, 3.64]$, $b \in [1, 10]$, $c \in [17.76, 18.39]$, and $d \in [3, 9]$

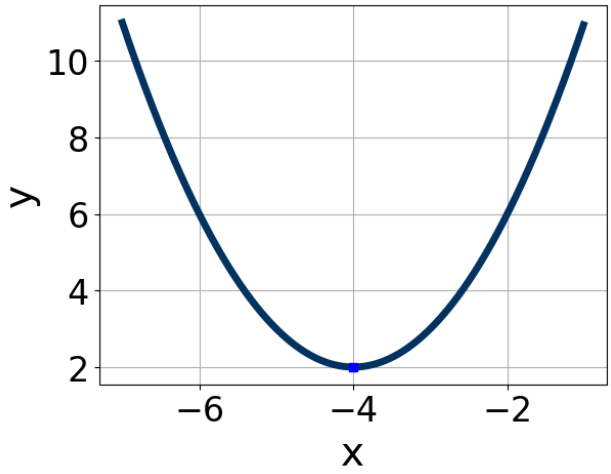
C. $a \in [7.53, 9.28]$, $b \in [1, 10]$, $c \in [5.06, 6.19]$, and $d \in [3, 9]$

D. $a \in [0.01, 2.03]$, $b \in [25, 32]$, $c \in [0.85, 1.82]$, and $d \in [44, 46]$

E. None of the above.

---

2. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [1, 3]$, $b \in [-8, -6]$, and $c \in [17, 19]$

B. $a \in [1, 3]$, $b \in [-8, -6]$, and $c \in [12, 15]$

C. $a \in [-2, 0]$, $b \in [7, 12]$, and $c \in [-15, -13]$

D. $a \in [1, 3]$, $b \in [7, 12]$, and $c \in [17, 19]$

E. $a \in [-2, 0]$, $b \in [-8, -6]$, and $c \in [-15, -13]$

---

3. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax+b)(cx+d); b \leq d$.

$$24x^2 + 38x + 15$$

A. $a \in [3.6, 4.3]$, $b \in [2, 5]$, $c \in [3.7, 8.4]$, and $d \in [2, 8]$

B. $a \in [-2.2, 2.5]$, $b \in [16, 22]$, $c \in [0.2, 2.1]$, and $d \in [18, 23]$

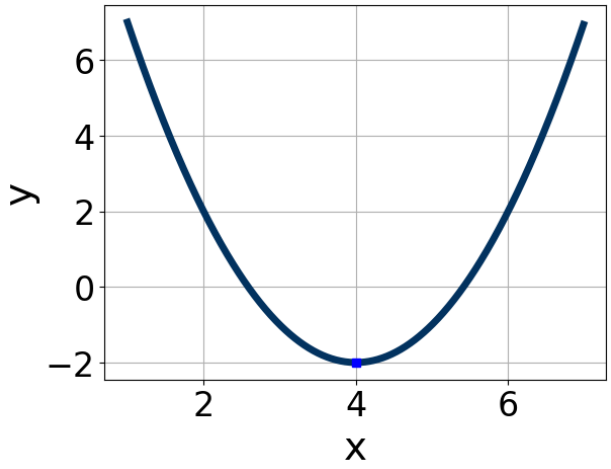
C. $a \in [4.3, 9.5]$, $b \in [2, 5]$, $c \in [2.5, 3.1]$, and $d \in [2, 8]$

D. $a \in [-2.2, 2.5]$, $b \in [2, 5]$, $c \in [17.7, 21.1]$, and $d \in [2, 8]$

E. None of the above.

---

4. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [0, 3]$, $b \in [-11, -7]$, and $c \in [12, 16]$

B. $a \in [0, 3]$, $b \in [7, 10]$, and $c \in [12, 16]$

C. $a \in [-1, 0]$, $b \in [7, 10]$, and $c \in [-18, -17]$

D. $a \in [0, 3]$, $b \in [7, 10]$, and $c \in [17, 20]$

E. $a \in [-1, 0]$, $b \in [-11, -7]$, and $c \in [-18, -17]$

---

5. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-19x^2 - 10x + 3 = 0$$

A. $x_1 \in [-0.47, 1]$ and $x_2 \in [0.36, 0.79]$

B. $x_1 \in [-18.58, -17.34]$ and $x_2 \in [17.55, 18.46]$

C. $x_1 \in [-5.15, -3.78]$ and $x_2 \in [13.22, 15.05]$

D. $x_1 \in [-1.53, -0.48]$ and $x_2 \in [-0.67, 0.65]$

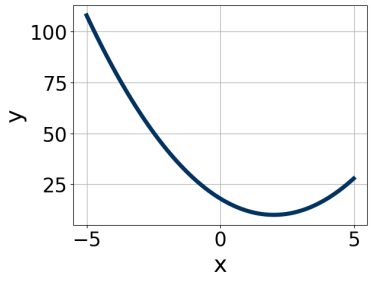
E. There are no Real solutions.

---

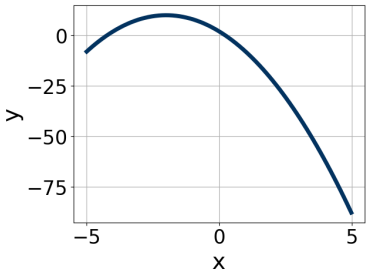
6. Graph the equation below.

$$f(x) = (x + 2)^2 + 10$$

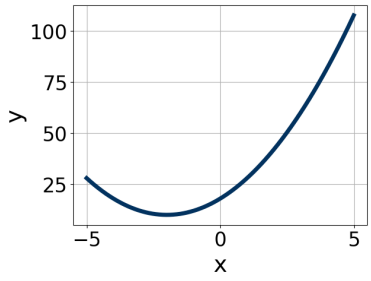
A.



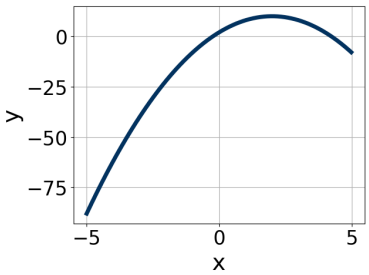
C.



B.



D.



E. None of the above.

---

7. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-15x^2 - 13x + 4 = 0$$

A. $x_1 \in [-0.3, 0.4]$ and $x_2 \in [0.4, 2.8]$

B. $x_1 \in [-1.4, -0.91]$ and $x_2 \in [0, 1]$

C. $x_1 \in [-21.08, -19.8]$ and $x_2 \in [19.5, 20.1]$

D. $x_1 \in [-3.72, -3.56]$ and $x_2 \in [15.5, 17.7]$

E. There are no Real solutions.

---

8. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 - 2x - 24 = 0$$

A. $x_1 \in [-1.34, -0.52]$ and $x_2 \in [1.19, 1.54]$

B. $x_1 \in [-18.42, -16.06]$ and $x_2 \in [19.15, 22.14]$

C. $x_1 \in [-0.61, 0.88]$ and $x_2 \in [3.23, 4.34]$

D. $x_1 \in [-3.25, -1.8]$ and $x_2 \in [0.52, 0.91]$

E. $x_1 \in [-7.68, -4.82]$ and $x_2 \in [-0.11, 0.28]$

---

9. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$20x^2 + 21x - 54 = 0$$

A. $x_1 \in [-2.36, -1.61]$ and $x_2 \in [0.71, 1.78]$

B. $x_1 \in [-45.17, -43.41]$ and $x_2 \in [23.82, 24.07]$

C. $x_1 \in [-1.74, -0.72]$ and $x_2 \in [2.86, 3.92]$

D. $x_1 \in [-6.09, -3.29]$ and $x_2 \in [0.49, 1.1]$

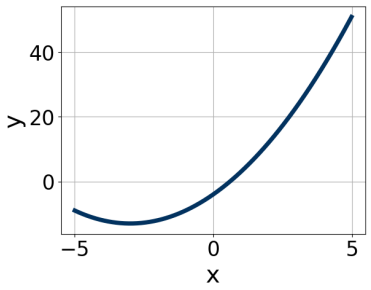
E. $x_1 \in [-9.23, -8.95]$ and $x_2 \in [-0.1, 0.31]$

---

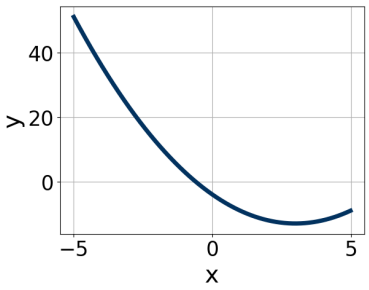
10. Graph the equation below.

$$f(x) = -(x - 3)^2 - 13$$

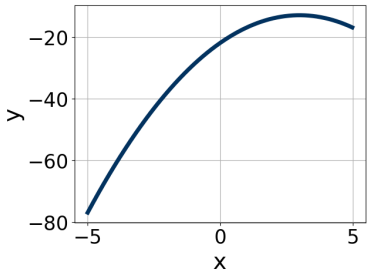
A.



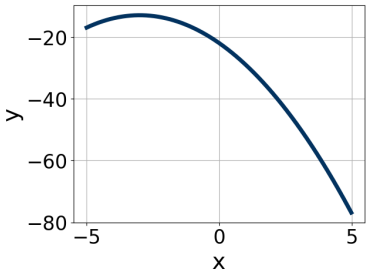
C.



B.



D.



E. None of the above.

---

11. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$36x^2 - 60x + 25$$

A. $a \in [-0.9, 1.5]$, $b \in [-37, -29]$, $c \in [0.51, 1.23]$, and $d \in [-36, -26]$

B. $a \in [16.5, 22.4]$, $b \in [-9, -3]$, $c \in [1.24, 2.9]$, and $d \in [-6, 0]$

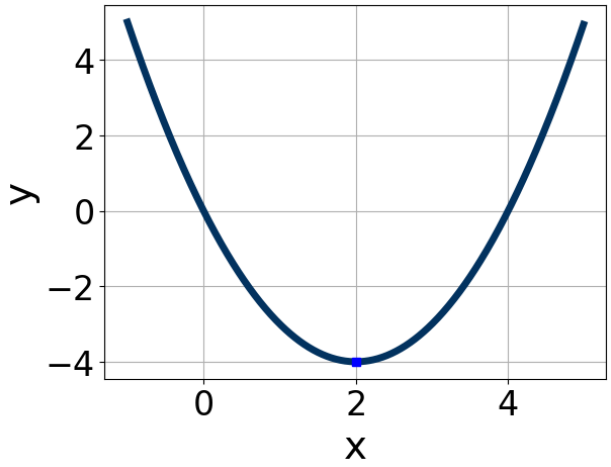
C. $a \in [1.1, 5]$, $b \in [-9, -3]$, $c \in [10.55, 12.05]$, and $d \in [-6, 0]$

D. $a \in [4.2, 11.2]$, $b \in [-9, -3]$, $c \in [5.15, 6.42]$, and $d \in [-6, 0]$

E. None of the above.

---

12. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-2, 0]$, $b \in [4, 5]$, and $c \in [-9, -5]$

B. $a \in [1, 5]$, $b \in [4, 5]$, and $c \in [-1, 6]$

C. $a \in [-2, 0]$, $b \in [-5, -3]$, and $c \in [-9, -5]$

D. $a \in [1, 5]$, $b \in [-5, -3]$, and $c \in [-1, 6]$

E. $a \in [1, 5]$, $b \in [4, 5]$, and $c \in [6, 9]$

---

13. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$81x^2 - 81x + 20$$

A. $a \in [8.8, 12.9]$, $b \in [-8, -1]$, $c \in [7.6, 10.7]$, and $d \in [-5, -1]$

B. $a \in [0.7, 2.9]$, $b \in [-48, -41]$, $c \in [-2.4, 1.9]$, and $d \in [-40, -32]$

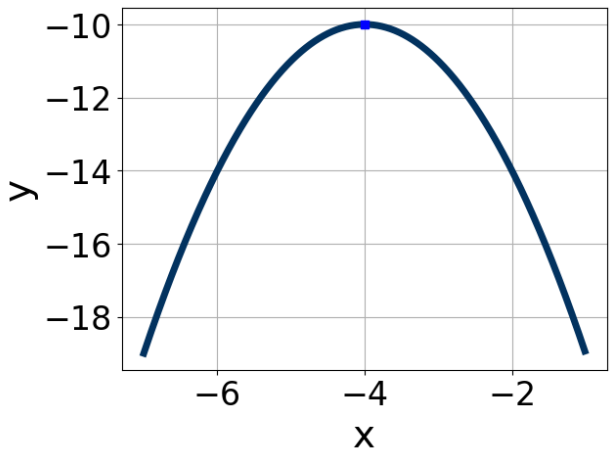
C. $a \in [26, 30.4]$, $b \in [-8, -1]$, $c \in [2, 4.6]$, and $d \in [-5, -1]$

D. $a \in [1.4, 3.8]$, $b \in [-8, -1]$, $c \in [25.5, 27.8]$, and $d \in [-5, -1]$

E. None of the above.

---

14. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-2, 0]$, $b \in [-8, -7]$, and $c \in [-27, -23]$

B. $a \in [-2, 0]$, $b \in [8, 11]$, and $c \in [-6, -4]$

C. $a \in [1, 4]$, $b \in [-8, -7]$, and $c \in [6, 7]$

D. $a \in [1, 4]$, $b \in [8, 11]$, and $c \in [6, 7]$

E. $a \in [-2, 0]$, $b \in [8, 11]$, and $c \in [-27, -23]$

---

15. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-15x^2 - 12x + 8 = 0$$

A. $x_1 \in [-7.8, -4.5]$ and $x_2 \in [17.7, 19.6]$

B. $x_1 \in [-26.2, -24.5]$ and $x_2 \in [23.4, 24.7]$

C. $x_1 \in [-2.3, -0.5]$ and $x_2 \in [0.3, 1]$

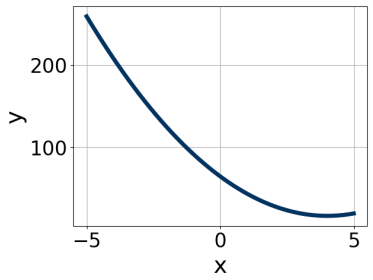
D. $x_1 \in [-0.9, 0.4]$ and $x_2 \in [0.6, 1.4]$

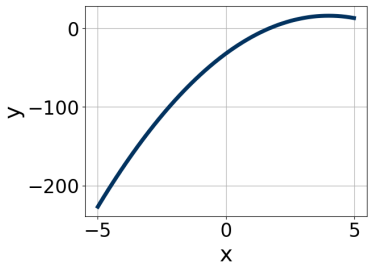
E. There are no Real solutions.

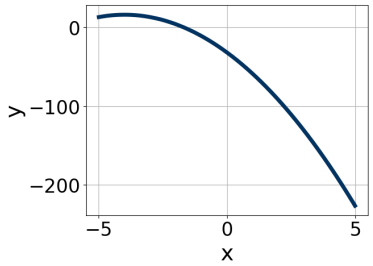
---

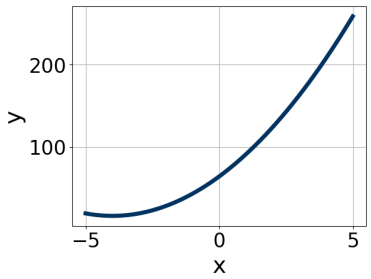
16. Graph the equation below.

$$f(x) = -(x - 4)^2 + 16$$

A. 

C. 

B. 

D. 

E. None of the above.

---

17. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-11x^2 + 11x + 8 = 0$$

A. $x_1 \in [-0.49, 0.51]$ and $x_2 \in [0.84, 1.56]$

B. $x_1 \in [-24.25, -20.25]$ and $x_2 \in [22.04, 23.11]$

C. $x_1 \in [-18.37, -14.37]$ and $x_2 \in [4.87, 5.5]$

D. $x_1 \in [-5.49, -0.49]$ and $x_2 \in [0.36, 1.22]$

E. There are no Real solutions.

---

18. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 - 60x + 36 = 0$$

A. $x_1 \in [0.12, 0.39]$ and $x_2 \in [5.23, 7.41]$

B. $x_1 \in [0.51, 0.71]$ and $x_2 \in [1.48, 2.88]$

C. $x_1 \in [0.38, 0.53]$ and $x_2 \in [2.79, 5.33]$

D. $x_1 \in [1.08, 1.33]$ and $x_2 \in [0.17, 2.27]$

E. $x_1 \in [29.88, 30.1]$ and $x_2 \in [28.99, 30.05]$

---

19. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 - 2x - 24 = 0$$

A. $x_1 \in [-6.73, -5.44]$ and $x_2 \in [0.25, 0.33]$

B. $x_1 \in [-3.72, -3.18]$ and $x_2 \in [0.28, 0.61]$

C. $x_1 \in [-18.11, -17.49]$ and $x_2 \in [20, 20.03]$

D. $x_1 \in [-1.14, -0.44]$ and $x_2 \in [2.49, 2.72]$

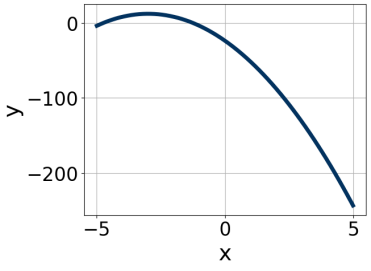
E. $x_1 \in [-1.22, -0.84]$ and $x_2 \in [1.32, 1.48]$

---

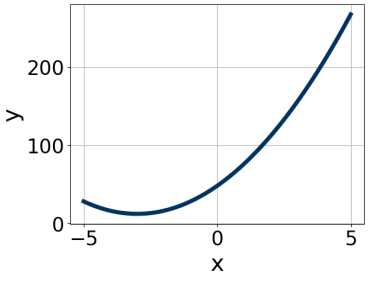
20. Graph the equation below.

$$f(x) = (x-3)^2 + 12$$

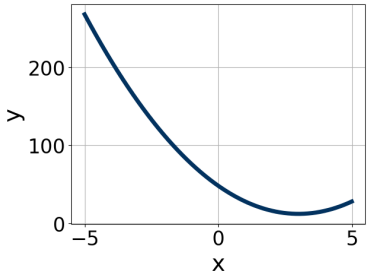
A.



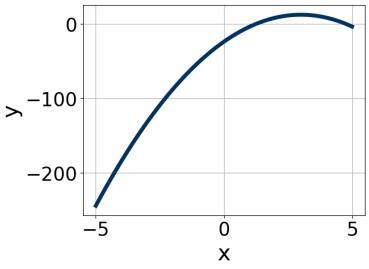
C.



B.



D.



E. None of the above.

21. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$24x^2 - 2x - 15$$

A. $a \in [1.7, 5.4]$, $b \in [-6, 1]$, $c \in [8, 10]$, and $d \in [2, 4]$

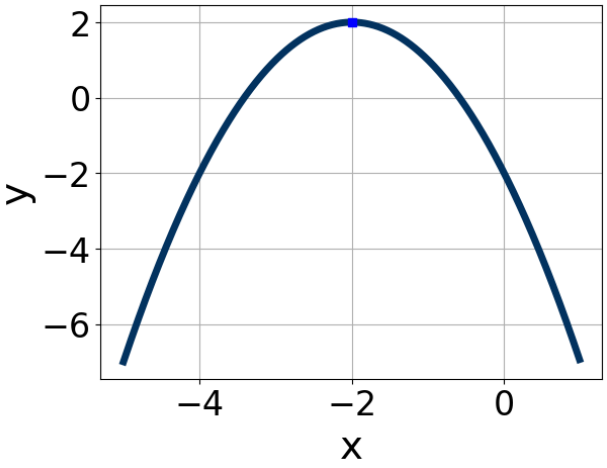
B. $a \in [3.3, 7.2]$, $b \in [-6, 1]$, $c \in [3, 6]$, and $d \in [2, 4]$

C. $a \in [-1.1, 1.9]$, $b \in [-23, -17]$, $c \in [-4, 2]$, and $d \in [15, 25]$

D. $a \in [17.6, 18.6]$, $b \in [-6, 1]$, $c \in [-4, 2]$, and $d \in [2, 4]$

E. None of the above.

22. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-1.1, -0.7]$, $b \in [2, 5]$, and $c \in [-9, -3]$

B. $a \in [-1.1, -0.7]$, $b \in [-7, -1]$, and $c \in [-4, -1]$

C. $a \in [-1.1, -0.7]$, $b \in [2, 5]$, and $c \in [-4, -1]$

D. $a \in [0.2, 2.4]$, $b \in [2, 5]$, and $c \in [6, 9]$

E. $a \in [0.2, 2.4]$, $b \in [-7, -1]$, and $c \in [6, 9]$

23. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$24x^2 + 50x + 25$$

A. $a \in [5.98, 6.49]$, $b \in [4, 10]$, $c \in [3.95, 4.54]$, and $d \in [2, 9]$

B. $a \in [11.66, 13.4]$, $b \in [4, 10]$, $c \in [1.8, 2.43]$, and $d \in [2, 9]$

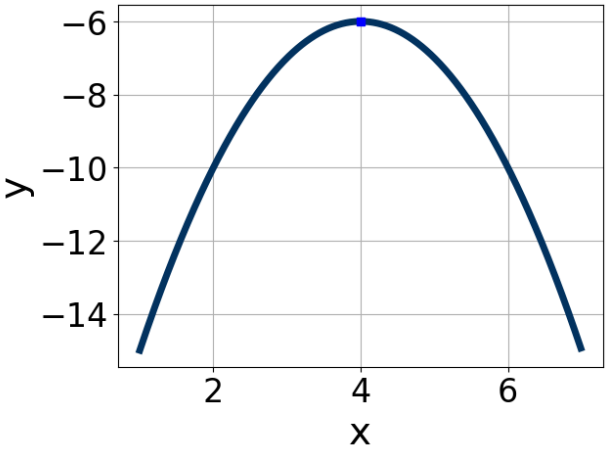
C. $a \in [-0.36, 1.49]$, $b \in [13, 21]$, $c \in [0.97, 1.26]$, and $d \in [23, 33]$

D. $a \in [1.25, 2.55]$, $b \in [4, 10]$, $c \in [11.85, 12.45]$, and $d \in [2, 9]$

E. None of the above.

---

24. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-1.3, 0.5]$, $b \in [8, 9]$, and $c \in [-23, -18]$

B. $a \in [0, 1.1]$, $b \in [8, 9]$, and $c \in [8, 11]$

C. $a \in [0, 1.1]$, $b \in [-8, -5]$, and $c \in [8, 11]$

D. $a \in [-1.3, 0.5]$, $b \in [-8, -5]$, and $c \in [-23, -18]$

E. $a \in [-1.3, 0.5]$, $b \in [-8, -5]$, and $c \in [-12, -7]$

---

25. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-12x^2 - 10x + 4 = 0$$

A. $x_1 \in [-1.54, -0.67]$ and $x_2 \in [-0.7, 1]$

B. $x_1 \in [-0.59, -0.03]$ and $x_2 \in [0.8, 1.9]$

C. $x_1 \in [-18.17, -17.3]$ and $x_2 \in [16.4, 18.4]$

D. $x_1 \in [-4.18, -2.99]$ and $x_2 \in [12.8, 13.7]$

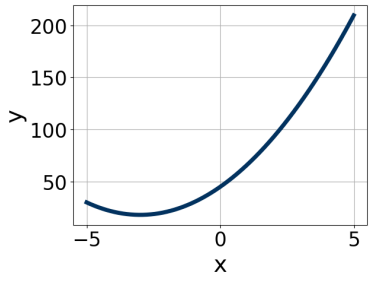
E. There are no Real solutions.

---

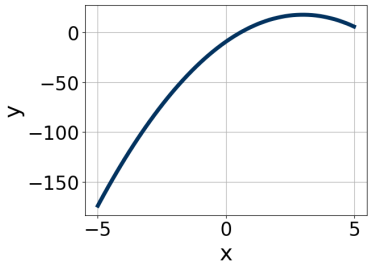
26. Graph the equation below.

$$f(x) = (x-3)^2 + 18$$

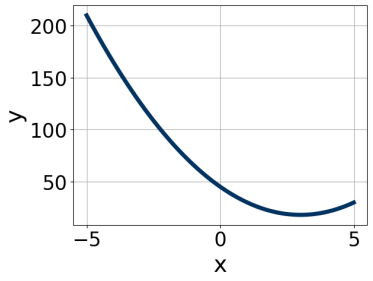
A.



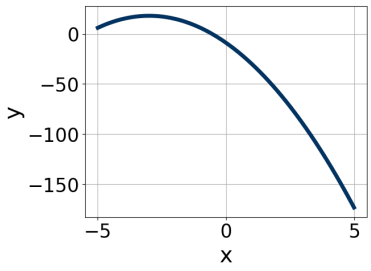
C.



B.



D.



E. None of the above.

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27. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-11x^2 + 7x + 9 = 0$$

A. $x_1 \in [-21.6, -20.4]$ and $x_2 \in [21.05, 22.11]$

B. $x_1 \in [-1.1, 1.9]$ and $x_2 \in [0.88, 2.39]$

C. $x_1 \in [-3.2, -0.8]$ and $x_2 \in [0.09, 0.99]$

D. $x_1 \in [-15.2, -12.3]$ and $x_2 \in [6.89, 7.07]$

E. There are no Real solutions.

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28. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 - 75x + 54 = 0$$

A. $x_1 \in [0.31, 0.39]$ and $x_2 \in [5.96, 7.79]$

B. $x_1 \in [29.95, 30]$ and $x_2 \in [42.83, 46.12]$

C. $x_1 \in [0.57, 0.64]$ and $x_2 \in [3.3, 3.81]$

D. $x_1 \in [1.16, 1.25]$ and $x_2 \in [0.89, 2.51]$

E. $x_1 \in [0.4, 0.46]$ and $x_2 \in [4.94, 5.77]$

---

29. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$25x^2 + 60x + 36 = 0$$

A. $x_1 \in [-3.83, -3.59]$ and $x_2 \in [-0.46, -0.32]$

B. $x_1 \in [-6.78, -5.74]$ and $x_2 \in [-0.37, -0.09]$

C. $x_1 \in [-30.58, -29.25]$ and $x_2 \in [-30.05, -29.91]$

D. $x_1 \in [-1.75, -0.99]$ and $x_2 \in [-1.23, -1.11]$

E. $x_1 \in [-2.56, -2.16]$ and $x_2 \in [-0.79, -0.53]$

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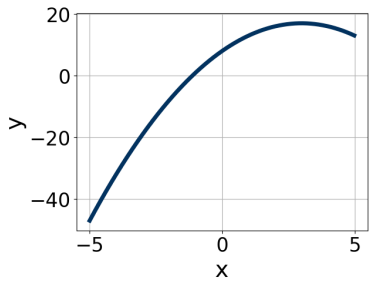
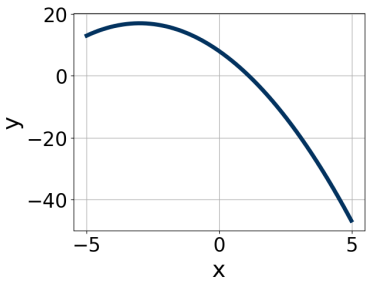
30. Graph the equation below.

$$f(x) = -(x-3)^2 + 17$$

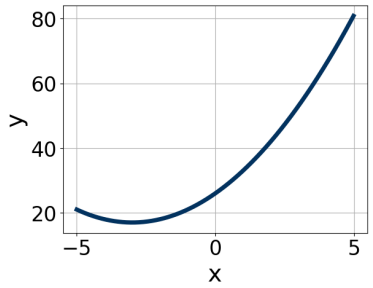
A.



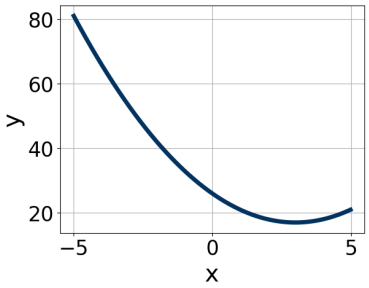
C.



B.



D.



E. None of the above.
